

SEQUENCE LISTING

<110> HYBRIGENICS

<120> SID nucleic acids and polypeptides selected from a pathogenic strain of the hepatitis C virus and applications

<130> B4809A - JAZ

<140> U.S.

<141> 2001-07-27

<150> EP 00402225.7

<151> 2000-08-03

<160> 156

<170> PatentIn Ver. 2.1

<210> 1

<211> 50

Q<212> PRT

Q<213> Hepatitis C virus

Q

<400> 1

Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
1 5 10 15

W

Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
20 25 30

V

Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
35 40 45

D

Pro Leu

50

T

<210> 2

<211> 35

<212> PRT

<213> Hepatitis C virus

<400> 2

Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
1 5 10 15Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala
20 25 30

Gly Cys Ala

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<210> 3

<211> 77

<212> PRT

<213> Hepatitis C virus

<400> 3
Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gln
1 5 10 15

Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly
20 25 30

Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg
35 40 45

Arg Gln Pro Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala
50 55 60

Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly
65 70 75

<210> 4
<211> 37
<212> PRT
<213> Hepatitis C virus

<400> 4
Pro Ser Pro Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
1 5 10 15

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn Thr
20 25 30

Arg Pro Pro Leu Gly
35

<210> 5
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<212> PRT
<213> Hepatitis C virus

<400> 5
Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile
1 5 10 15

Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser
20 25 30

Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
35 40 45

Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro
50 55 60

Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe
65 70 75 80

Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln
85 90 95

Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys
115 120 125

Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr
130 135 140

Arg Leu Gly Ala Val Gln
145 150

<210> 6
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 6
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
1 5 10 15

□ Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val
■ 20 25

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<210> 7  
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<213> Hepatitis C virus
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Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro
1 5 10 15

Val Tyr Cys Phe Thr Pro Ser Pro Val Val
20 25

<210> 8
<211> 54
<212> PRT
<213> Hepatitis C virus

<400> 8
Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro Ala Ile
1 5 10 15

Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu
20 25 30

Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala Glu
 35 40 45

Gln Phe Lys Gln Lys Al
50

<210> 9
<211> 40
<212> PRT
<213> Hepatitis C virus

<400> 9
Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr
1 5 10 15
Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu
20 25 30
Pro Gln Asp Ala Val Ser Arg Thr
35 40

<210> 10
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 10
Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr
1 5 10 15
Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
20 25

<210> 11
<211> 27
<212> PRT
<213> Hepatitis C virus

<400> 11
Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro
1 5 10 15
Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
20 25

<210> 12
<211> 42
<212> PRT
<213> Hepatitis C virus

<400> 12
Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn
1 5 10 15
Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg
20 25 30
Leu Ile Val Phe Pro Asp Leu Gly Val Arg
35 40

<210> 13
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 13
Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala
1 5 10 15
Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
20 25

<210> 14
<211> 33
<212> PRT
<213> Hepatitis C virus

<400> 14
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
1 5 10 15
Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro
20 25 30
Val

<210> 15
<211> 31
<212> PRT
<213> Hepatitis C virus

<400> 15
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
1 5 10 15
Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn
20 25 30

<210> 16
<211> 77
<212> PRT
<213> Hepatitis C virus

<400> 16
Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser
1 5 10 15
Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala
20 25 30
Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly
35 40 45

Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala
 50 55 60

Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
 65 70 75

<210> 17
 <211> 147
 <212> PRT
 <213> Hepatitis C virus

<400> 17
 Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys
 1 5 10 15

Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr
 20 25 30

Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp
 35 40 45

Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr
 50 55 60

Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala
 65 70 75 80

Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu
 85 90 95

Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu
 100 105 110

Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys
 115 120 125

Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu
 130 135 140

Gly Thr Thr
 145

<210> 18
 <211> 36
 <212> PRT
 <213> Hepatitis C virus

<400> 18
 Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
 1 5 10 15

Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
 20 25 30

Cys Glu Val Leu
 35

<210> 19
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 19
Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly
1 5 10 15
Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp
20 25

<210> 20
<211> 45
<212> PRT
<213> Hepatitis C virus

<400> 20
Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg
1 5 10 15
Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe
20 25 30
Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile
35 40 45

<210> 21
<211> 86
<212> PRT
<213> Hepatitis C virus

<400> 21
Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val
1 5 10 15
Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly
20 25 30
Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro
35 40 45
Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly
50 55 60
Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
65 70 75 80
Gly Pro Gly Glu Gly Ala
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<210> 22
<211> 43

<212> PRT
<213> Hepatitis C virus

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<400> 22
Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
      1           5           10          15

Pro Ser Pro Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
      20          25          30

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe
      35          40

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<210> 23
<211> 63
<212> PRT
<213> Hepatitis C virus

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<400> 23
Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala
      1           5           10          15

Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp
      20          25          30

Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val
      35          40          45

Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly
      50          55          60

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210> 24
211> 29
212> PRT
213> Hepatitis C virus

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<400> 24
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
      1           5           10          15

Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
      20          25

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<210> 25
<211> 76
<212> PRT
<213> Hepatitis C virus

<400> 25
Arg Arg His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly
1 5 10 15

His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser
20 25 30

Pro Thr Ala Ala Leu Val Val Ala Gln Leu Leu Arg Ile Pro Gln Ala
 35 40 45

Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile
 50 55 60

Ala Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val
 65 70 75

<210> 26

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 26

Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His
 1 5 10 15

Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu
 20 25 30

Arg Asp Ile Trp Asp
 35

<210> 27

<211> 47

<212> PRT

<213> Hepatitis C virus

<400> 27

Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly
 1 5 10 15

Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp
 20 25 30

Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr
 35 40 45

<210> 28

<211> 53

<212> PRT

<213> Hepatitis C virus

<400> 28

Leu Pro Ala Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu
 1 5 10 15

Glu Tyr Val Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly
 20 25 30

Met Thr Thr Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu
 35 40 45

Phe Phe Thr Glu Leu

50

<210> 29
<211> 112
<212> PRT
<213> Hepatitis C virus

<400> 29
Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys
1 5 10 15
Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu
20 25 30
Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr
35 40 45
Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val
50 55 60
Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser
65 70 75 80
Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu
85 90 95
Asp Pro Thr Phe Thr Ile Glu Thr Thr Leu Pro Gln Asp Ala Val
100 105 110

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<210> 30
<211> 54
<212> PRT
<213> Hepatitis C virus

<400> 30
Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala
1 5 10 15
Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His
20 25 30
Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val
35 40 45
Thr Ala Ile Leu Ser Ser
50

<210> 31
<211> 102
<212> PRT
<213> Hepatitis C virus

<400> 31

Ala	Ile	Lys	Ser	Leu	Thr	Glu	Arg	Leu	Tyr	Val	Gly	Gly	Pro	Leu	Thr
1				5				10					15		

Asn	Ser	Arg	Gly	Glu	Asn	Cys	Gly	Tyr	Arg	Arg	Cys	Arg	Ala	Ser	Gly
				20				25				30			

Val	Leu	Thr	Thr	Ser	Cys	Gly	Asn	Thr	Leu	Thr	Cys	Tyr	Ile	Lys	Ala
					35			40				45			

Arg	Ala	Ala	Cys	Arg	Ala	Ala	Gly	Leu	Gln	Asp	Cys	Thr	Met	Leu	Val
				50				55			60				

Cys	Gly	Asp	Asp	Asp	Leu	Val	Val	Ile	Cys	Glu	Ser	Ala	Gly	Val	Gln	Glu
					65			70			75			80		

Asp	Ala	Ala	Ser	Leu	Arg	Ala	Phe	Thr	Glu	Ala	Met	Thr	Arg	Tyr	Ser
					85			90				95			

Ala	Pro	Pro	Gly	Asp	Pro										
					100										

<210> 32

<211> 79

<212> PRT

<213> Hepatitis C virus

<400> 32

Leu	Gln	Val	Leu	Asp	Ser	His	Tyr	Gln	Asp	Val	Leu	Lys	Glu	Val	Lys
1				5				10				15			

Ala	Ala	Ala	Ser	Lys	Val	Lys	Ala	Asn	Leu	Leu	Ser	Val	Glu	Glu	Ala
				20				25				30			

Cys	Ser	Leu	Thr	Pro	Pro	His	Ser	Ala	Lys	Ser	Lys	Phe	Gly	Tyr	Gly
				35			40				45				

Ala	Lys	Asp	Val	Arg	Cys	His	Ala	Arg	Lys	Ala	Val	Ala	His	Ile	Asn
				50			55				60				

Ser	Val	Trp	Lys	Asp	Leu	Leu	Glu	Asp	Ser	Val	Thr	Pro	Ile	Asp	
				65			70				75				

<210> 33

<211> 61

<212> PRT

<213> Hepatitis C virus

<400> 33

Thr	Gln	Thr	Val	Asp	Phe	Ser	Leu	Asp	Pro	Thr	Phe	Thr	Ile	Glu	Thr
1				5				10				15			

Thr	Thr	Leu	Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg
				20				25				30			

Thr	Gly	Arg	Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu
				35			40				45				

Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
 50 55 60

<210> 34
 <211> 77
 <212> PRT
 <213> Hepatitis C virus

<400> 34
 Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys Ala Ala
 1 5 10 15

Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser
 20 25 30

Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys
 35 40 45

Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn Ser Val
 50 55 60

Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp
 65 70 75

<210> 35
 <211> 26
 <212> PRT
 <213> Hepatitis C virus

<400> 35
 Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly
 1 5 10 15

Pro Val Tyr Cys Phe Thr Pro Ser Pro Val
 20 25

<210> 36
 <211> 37
 <212> PRT
 <213> Hepatitis C virus

<400> 36
 Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro Tyr Cys
 1 5 10 15

Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val
 20 25 30

Cys Gly Pro Val Tyr
 35

<210> 37

<211> 35
<212> PRT
<213> Hepatitis C virus

<400> 37
Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu
1 5 10 15
Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp
20 25 30
Ile Cys Glu
35

<210> 38
<211> 25
<212> PRT
<213> Hepatitis C virus

<400> 38
Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro
1 5 10 15
Cys Ser Gly Ser Trp Leu Arg Asp Ile
20 25

<210> 39
<211> 152
<212> DNA
<213> Hepatitis C virus

<400> 39
cttggccg cgcaggggcc ctagattggg tttgcgcgcg acgaggaaga cttccgagcg 60
gtcgcaacct cgaggttagac gtcagcctat ccccaaggca cgtcgccccg agggcaggac 120
ctgggcttag cccgggtacc cttggcccct ct 152

<210> 40
<211> 106
<212> DNA
<213> Hepatitis C virus

<400> 40
tggcaggggg aagccaggca tctatacatt ttggcacccg ggggagcgcc cctccggcat 60
gttcgactcg tccgtcctct gtgagtgtca tgacgcggc tttgtct 106

<210> 41
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 41
taacaccaac cgtcgcccac aggacgtcaa gttcccggtt ggccgtcaga tcgttgggtgg 60
agtttacttg ttggccgcga ggggccttag attgggtgtg cgcgcacga ggaagacttc 120
cgagcggctcg caacctcgag gtagacgtca gcctatcccc aaggcacgtc ggcccgaggg 180
caggacctgg gctcagcccg ggtaccccttg gccccttat ggcaatgagg gttt 234

<212> DNA

<213> Hepatitis C virus

<400> 47

cggcgacttc gactctgtga tagactgcaa cacgtgtgtc actcagacag tcgatttcag 60
ccttgaccct acctttacca ttgagacaac cacgctcccc caggatgctg tctccaggac 120
tca 123

<210> 48

<211> 87

<212> DNA

<213> Hepatitis C virus

<400> 48

ggagcggccc tccggcatgt tcgactcgtc cgtcctctgt gagtgctatg acgcgggctg 60
tgcttggat gagctcacgc ccggcga 87

<210> 49

<211> 84

<212> DNA

<213> Hepatitis C virus

2660
GET
E
Z
S
D
B
B
H

<400> 49

caggggaaag ccaggcatct atagatttgt ggcaccgggg gagcgccctt ccggcatgtt 60
cgactcggtcc gtcctctgtg agtg 84

<210> 50

<211> 128

* <212> DNA

□ <213> Hepatitis C virus

2660
GET
E
Z
S
D
B
B
H

<400> 50

tctgaaagac agtgtaaacac caatagacac taccatcatg gccaaagaacg aggtttctg 60
cgttcagcct gagaaggggg gtcgttaagcc agtcgtctc atcgtgttcc ccgacacctgg 120
cgtgcgcg 128

<210> 51

<211> 85

<212> DNA

<213> Hepatitis C virus

<400> 51

tcccacccggc agcgtaaga gcaccaaggt cccggctgct tacgcagccc agggctacaa 60
ggtgttggtg ctcaaccctt ctgtt 85

<210> 52

<211> 102

<212> DNA

<213> Hepatitis C virus

<400> 52

cgaacgcccc tactgctggc actaccctcc aagaccttgtt ggcattgtgc ccgcaaagag 60
cgtgtgtggc ccggtatatt gttcaactcc cagccccgtg gt 102

<210> 53

<211> 95
 <212> DNA
 <213> Hepatitis C virus

<400> 53
 tccccagccccc gtgggtggtgg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60
 tgcaaatgat acggatgtct tcgtccttaa caaca 95

<210> 54
 <211> 234
 <212> DNA
 <213> Hepatitis C virus

<400> 54
 ggcgggagct cttgttagcat tcaagatcat gagcggtgag gtccctcca cggaggacct 60
 ggtcaatctg ctgcccgcac tcctctcgcc tggagccctt gtatcggtg tggctgcgc 120
 agcaatactg cgccggcacg ttggcccgaa cgagggggca gtgcaatgga tgaacccggct 180
 aatagccttc gcctcccgaa ggaaccatgt ttcccccacg cactacgtgc cgga 234

<210> 55
 <211> 442
 <212> DNA
 <213> Hepatitis C virus

<400> 55
 tgaggtccag atcgtgtcaa ctgctaccca aacccctctg gcaacgtgca tcaatgggt 60
 atgctggact gtctaccacg gggccggaac gaggaccatc gcatcaccca agggccctgt 120
 catccagatg tataccaatg tggaccaaga ccttgtggc tggcccgctc ctcaagggttc 180
 ccgctcattt acaccctgtt cctgcggctc ctcggacctt tacctggtca cgaggcacgc 240
 cgatgtcatt cccgtgcgcc ggcgaggtga tagcaggggt agcctgtttt cgcccccggcc 300
 catttcctac ttgaaaggct cctccgggggg tccgctgttg tgcccccggg gacacggcgt 360
 gggcctattt agggccgggg tgtgcacccg tggagtggct aaagcggtgg actttatccc 420
 tgtggagaac cttagggacaa cc 442

<210> 56
 <211> 111
 <212> DNA
 <213> Hepatitis C virus

<400> 56
 tgtaacccag ctccctgaggc gactgcatca gtggataagc tcggagtgtt ccactccatg 60
 ctccggttcc tggctaaggg acatctggga ctggatatgc gaggtgtga g 111

<210> 57
 <211> 87
 <212> DNA
 <213> Hepatitis C virus

<400> 57
 cgtgtgtggc ccggtatatt gcttcactcc cagccccgtg gtgggtggaa cgaccgacag 60
 gtcggggcgcg cctacacctaca gctgggg 87

<210> 58
 <211> 137
 <212> DNA
 <213> Hepatitis C virus

P 2
 <400> 58

ccgcgccttg cgagcttgg aacaccggc ccggagcg tc cgcgctaggc ttctgtccag 60
 aggaggcagg/gtcgcataat gtggcaagta cctcttcaac/tggcagtaa gaacaaagct 120
 caaactcact ccaatag 137

<210> 59

<211> 259

<212> DNA

<213> Hepatitis C virus

<400> 59

tactgcctt gtgggtgctg gcctagctgg cgccgcacatc ggcagcgttg gactggggaa 60
 ggtcctcg tg gacattctt cagggatgg cgccggcg tg gcccggagctc ttgttagcatt 120
 caagatcatg agcggtgagg tccctccac ggaggacctg gtcaatctgc tgcccgccat 180
 cctctcgcc ggagccctt tagtcggtgt ggtctgcgca gcaatactgc gccggcacgt 240
 tggcccccggc gagggggca 259

<210> 60

<211> 130

<212> DNA

<213> Hepatitis C virus

<400> 60

tggcatttg cccgcaaaga gcgtgtgtgg cccggatatat tgcttcactc ccagccccgt 60
 ggtggggga acgaccgaca ggtcggcgcc gcctacctac agctgggtg caaatgatac 120
 ggtatgtcttc 130

<210> 61

<211> 191

<212> DNA

<213> Hepatitis C virus

<400> 61

ggtcctcg tg gacattctt cagggatgg cgccggcg tg gcccggagctc ttgttagcatt 60
 caagatcatg agcggtgagg tccctccac ggaggacctg gtcaatctgc tgcccgccat 120
 cctctcgcc ggagccctt tagtcggtgt ggtctgcgca gcaatactgc gccggcacgt 180
 tggcccccggc g 191

<210> 62

<211> 89

<212> DNA

<213> Hepatitis C virus

<400> 62

cgaacgcccc tactgctgg actaccctcc aagaccttgtt ggcattgtgc ccgcaaagag 60
 cgtgtgtggc ccggatatatt gcttcactc 89

<210> 63

<211> 230

<212> DNA

<213> Hepatitis C virus

<400> 63

caggcgccac tggacgacgc aagactgcaa ttgttctatc tatcccgcc atataaacggg 60
 tcatcgcatg gcatggata tggatgtgaa ctggccctt acggcagcgt tggtggtagc 120

tcagctgctc cgatatccac aagccatcat ggacatgatc gctggtgctc actggggagt 180
 cctggcgccc atagcgtatt tctccatggt ggggaactgg gcgaagggtcc 230

<210> 64
 <211> 113
 <212> DNA
 <213> Hepatitis C virus

<400> 64
 tgccatactc agcagcctca ctgtaaccca gctcctgagg cgactgcata agtggataag 60
 ctcggagtgt accactccat gctccggttc ctggctaagg gacatctggg act 113

<210> 65
 <211> 142
 <212> DNA
 <213> Hepatitis C virus

<400> 65
 tgtctccagg actcaacgcc gggcaggac tggcaggggg aagccaggca tctatagatt 60
 tgtggcaccc ggggagcgc cctccggcat gttcgactcg tccgtcctct gtgagtgcta 120
 tgacgcgggc tgtgcttggt at 142

<210> 66
 <211> 162
 <212> DNA
 <213> Hepatitis C virus

<400> 66
 ctttcctgcg ccgaactata agttcgcgct gtggaggggtg tctgcagagg aatacgtgga 60
 gataaggcgg gtgggggact tccactacgt atcgggtatg actactgaca atcttaatg 120
 cccgtgccag atccccatcgc ccgaatttt cacagaattt ga 162

<210> 67
 <211> 337
 <212> DNA
 <213> Hepatitis C virus

<400> 67
 cggagagatc cccttttacg gcaaggctat ccccctcgag gtatcaagg gggaaagaca 60
 tctcatcttc tgccactcaa agaagaagtg cgacgagtc gcccgaagc tggtcgcatt 120
 gggcatcaat gccgtggct actaccgcgg tcttgcacgt tctgtcatcc cgaccagcgg 180
 cgatgtgtc gtcgtgtcga ccgatgtct catgactggc ttaccggcg acttcgactc 240
 tgtgatagac tcaaacacgt gtgtcactca gacagtcgtt ttcagccttg accctacctt 300
 taccattttag acaaccacgc tcccccagga tgctgtc 337

<210> 68
 <211> 163
 <212> DNA
 <213> Hepatitis C virus

<400> 68
 ggtctgcgca gcaatactgc gcccgcacgt tggcccgggc gagggggcag tgcaatggat 60
 gaaccggcta atagccttcg cctcccgaaa gaaccatgtt tcccccacgc actacgtgcc 120
 ggagagcgtt gcagccgccc gctcactgc cataactcagc agc 163

<210> 69
<211> 309
<212> DNA
<213> Hepatitis C virus

<400> 69
ggccatcaag tccctcactg agaggctta tgttggggc cctcttacca attcaagggg 60
ggaaaactgc ggctaccgca ggtgccgcgc gagcggcgta ctgacaacta gctgtggtaa 120
caccctcact tgctacatca aggcccggc agcctgtcga gccgcagggc tccaggactg 180
caccatgctc gtgtgtggcg acgacttagt cgttatctgt gaaagtgcgg gggtcagga 240
ggacgcggcg agcctgagag cttcacgga ggctatgacc aggtactccg ccccccccg 300
ggacccccc 309

<210> 70
<211> 240
<212> DNA
<213> Hepatitis C virus

<400> 70
actgcaagtt ctggacagcc attaccagga cgtgctcaag gaggtcaaag cagcggcg 60
aaaagtgaag gctaacttgc tatccgtaga ggaagctgc agcctgacgc ccccacattc 120
agccaaatcc aagtttggct atggggcaaa agacgtccgt tgccatgcca gaaaggccgt 180
agcccacatc aactccgtgt ggaaagacct tctggaagac agtgaacac caatagacac 240

<210> 71
<211> 184
<212> DNA
<213> Hepatitis C virus

<400> 71
cactcagaca gtcgatttca gccttgaccc taccttacc attgagacaa ccacgctccc 60
ccaggatgct gtcctcagga ctcaacgccc gggcaggact ggcaaggggg agccaggcat 120
ctatagattt gtggcaccgg gggagcgc ctcggcatg ttgcactcgt ccgtcctctg 180
tgag 184

<210> 72
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 72
agttctggac agcatttacc aggacgtgct caaggaggc aaagcagcgg cgtcaaaagt 60
gaaggctaac ttgctatccg tagaggaagc ttgcagcctg acgccccac attcagccaa 120
atccaagttt ggctatgggg caaaagacgt ccgttgccat gccagaaagg ccgtagccca 180
catcaactcc gtgtggaaag accttctgga agacagtgt aaccaatag acac 234

<210> 73
<211> 80
<212> DNA
<213> Hepatitis C virus

<400> 73
ctaccctcca agactttgtg gcatttgcc cgcaaagagc gtgtgtggcc cggttatattg 60
tttcaactccc agccccgtgg 80

<210> 74

<211> 112
<212> DNA
<213> Hepatitis C virus

<400> 74
tcctatcgt tatgccaacg gaagcggcct cgacgaacgc ccctactgct ggcactaccc 60
tccaagacct tgtggcattg tgcccgaaa gagcgtgtgt ggccccgtat at 112

<210> 75
<211> 107
<212> DNA
<213> Hepatitis C virus

<400> 75
caactgtaacc cagctcctga ggcgactgca tcagtggata agctcggagt gtaccactcc 60
atgctccggc ttccctggctaa gggacatctg ggactggata tgcgagg 107

<210> 76
<211> 78
<212> DNA
<213> Hepatitis C virus

<400> 76
gctcctgagg cgactgcattc agtggataag ctcggagtgt accactccat gctccggttc 60
ctggctaagg gacatctg 78

<210> 77
<211> 103
<212> PRT
<213> Hepatitis C virus

<400> 77
Ala Cys Glu Cys Pro Gly Arg Ser Arg Arg Pro Cys Thr Met Ser Thr
1 5 10 15

Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro
20 25 30

Gln Asp Val Lys Phe Pro Gly Gly Gln Ile Val Gly Gly Val Tyr
35 40 45

Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
50 55 60

Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
65 70 75 80

Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
85 90 95

Pro Leu Tyr Gly Asn Glu Gly
100

<210> 78
<211> 113
<212> PRT

<213> Hepatitis C virus

<400> 78

Met	Ser	Thr	Asn	Pro	Lys	Pro	Gln	Arg	Lys	Thr	Lys	Arg	Asn	Thr	Asn
1				5					10					15	

Arg	Arg	Pro	Gln	Asp	Val	Lys	Phe	Pro	Gly	Gly	Gly	Gln	Ile	Val	Gly
				20				25					30		

Gly	Val	Tyr	Leu	Leu	Pro	Arg	Arg	Gly	Pro	Arg	Leu	Gly	Val	Arg	Ala
					35			40				45			

Thr	Arg	Lys	Thr	Ser	Glu	Arg	Ser	Gln	Pro	Arg	Gly	Arg	Arg	Gln	Pro
					50			55			60				

Ile	Pro	Lys	Ala	Arg	Arg	Pro	Glu	Gly	Arg	Thr	Trp	Ala	Gln	Pro	Gly
					65		70		75			80			

Tyr	Pro	Trp	Pro	Leu	Tyr	Gly	Asn	Glu	Gly	Cys	Gly	Trp	Ala	Gly	Trp
					85			90				95			

Leu	Leu	Ser	Pro	Arg	Gly	Ser	Arg	Pro	Ser	Trp	Gly	Pro	Thr	Asp	Pro
					100			105			110				

Arg

<210> 79

<211> 114

<212> PRT

<213> Hepatitis C virus

<400> 79

Ala	Ile	Leu	His	Thr	Pro	Gly	Cys	Val	Pro	Cys	Val	Arg	Glu	Gly	Asn
1				5				10			15				

Ala	Ser	Arg	Cys	Trp	Val	Ala	Val	Thr	Pro	Thr	Val	Ala	Thr	Arg	Asp
					20			25			30				

Gly	Lys	Leu	Pro	Thr	Thr	Gln	Leu	Arg	Arg	His	Ile	Asp	Leu	Leu	Val
					35		40			45					

Gly	Ser	Ala	Thr	Leu	Cys	Ser	Ala	Leu	Tyr	Val	Gly	Asp	Leu	Cys	Gly
					50			55			60				

Ser	Val	Phe	Leu	Val	Gly	Gln	Leu	Phe	Thr	Phe	Ser	Pro	Arg	Arg	His
					65		70		75		80				

Trp	Thr	Thr	Gln	Asp	Cys	Asn	Cys	Ser	Ile	Tyr	Pro	Gly	His	Ile	Thr
					85			90			95				

Gly	His	Arg	Met	Ala	Trp	Asp	Met	Met	Asn	Trp	Ser	Pro	Thr	Ala
					100			105			110			

Ala Leu

<210> 80
<211> 91
<212> PRT
<213> Hepatitis C virus

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<400> 80
Gly Val Asp Ala Glu Thr His Val Thr Gly Gly Asn Ala Gly Arg Thr
   1           5           10          15

Thr Ala Gly Leu Val Gly Leu Leu Thr Pro Gly Ala Lys Gln Asn Ile
   20          25          30

Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Ser Thr Ala Leu
   35          40          45

Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp Leu Ala Gly Leu Phe Tyr
   50          55          60

Gln His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys
   65          70          75          80

Arg Arg Leu Thr Asp Phe Ala Gln Gly Trp Gly
   85          90

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<210> 81
<211> 176
<212> PRT
<213> Hepatitis C virus

<400> 81
 Trp Gly Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro
 1 5 10 15
 Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys
 20 25 30
 Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val
 35 40 45
 Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn
 50 55 60
 Asp Thr Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn
 65 70 75 80
 Trp Phe Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys
 85 90 95
 Gly Ala Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu
 100 105 110
 Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ser Arg
 115 120 125
 Cys Gly Ser Gly Pro Trp Ile Thr Pro Arg Cys Met Val Asp Tyr Pro
 130 135 140
 Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys
 145 150 155 160

Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys
 165 170 175

<210> 82
 <211> 96
 <212> PRT
 <213> Hepatitis C virus

<400> 82
 Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val
 1 5 10 15

Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr
 20 25 30

Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn Asp Thr
 35 40 45

Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn Trp Phe
 50 55 60

Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys Gly Ala
 65 70 75 80

Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu Cys Pro
 85 90 95

<210> 83
 <211> 278
 <212> PRT
 <213> Hepatitis C virus

<400> 83
 Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg
 1 5 10 15

Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly
 20 25 30

Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly
 35 40 45

Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln
 50 55 60

Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu
 65 70 75 80

Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly
 85 90 95

Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr
 100 105 110
 Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg
 115 120 125
 Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr
 130 135 140
 Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly
 145 150 155 160
 Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly
 165 170 175
 Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala
 180 185 190
 Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val
 195 200 205
 Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser
 210 215 220
 Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala
 225 230 235 240
 Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala
 245 250 255
 Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu
 260 265 270
 Gly Phe Gly Ala Tyr Met
 275

<210> 84
 <211> 158
 <212> PRT
 <213> Hepatitis C virus

<400> 84
 Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile
 1 5 10 15
 Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly
 20 25 30
 His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala
 35 40 45
 Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg
 50 55 60
 Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser
 65 70 75 80
 Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr

85

90

95

Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu
 100 105 110

Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys
 115 120 125

Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr
 130 135 140

Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu
 145 150 155

<210> 85
 <211> 263
 <212> PRT
 <213> Hepatitis C virus

<400> 85
 Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys
 1 5 10 15

Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly
 20 25 30

Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp
 35 40 45

Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe
 50 55 60

Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala
 65 70 75 80

His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala
 85 90 95

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
 100 105 110

Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val
 115 120 125

Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro
 130 135 140

Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser
 145 150 155 160

Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr Asp
 165 170 175

Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr
 180 185 190

Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser
 195 200 205

Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr
 210 215 220

Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys
 225 230 235 240

Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu
 245 250 255

Leu Ala Ala Lys Leu Val Ala
 260

<210> 86
 <211> 194
 <212> PRT
 <213> Hepatitis C virus

<400> 86

Asp	Asn	Ser	Ser	Pro	Pro	Ala	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His
1				5				10					15		

Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala
 20 25 30

Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala
 35 40 45

Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp
 50 55 60

Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile
 65 70 75 80

Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly
 85 90 95

Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala
 100 105 110

Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala
 115 120 125

Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val
 130 135 140

Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly
 145 150 155 160

Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly
 165 170 175

Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu
 180 185 190

Ala Ala

<210> 87
<211> 205
<212> PRT
<213> Hepatitis C virus

<400> 87

Leu	Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	Cys
1			5				10							15	

Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr

20				25					30						
----	--	--	--	----	--	--	--	--	----	--	--	--	--	--	--

Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala

35				40					45						
----	--	--	--	----	--	--	--	--	----	--	--	--	--	--	--

Thr Ala Thr Pro Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu

50				55					60						
----	--	--	--	----	--	--	--	--	----	--	--	--	--	--	--

Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala

65				70					75				80		
----	--	--	--	----	--	--	--	--	----	--	--	--	----	--	--

Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His

85					90					95					
----	--	--	--	--	----	--	--	--	--	----	--	--	--	--	--

Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly

100				105					110						
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Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro

115				120					125						
-----	--	--	--	-----	--	--	--	--	-----	--	--	--	--	--	--

Thr Ser Gly Asp Val Val Val Ser Thr Asp Ala Leu Met Thr Gly

130				135					140						
-----	--	--	--	-----	--	--	--	--	-----	--	--	--	--	--	--

Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr

145				150					155				160		
-----	--	--	--	-----	--	--	--	--	-----	--	--	--	-----	--	--

Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr

165					170					175					
-----	--	--	--	--	-----	--	--	--	--	-----	--	--	--	--	--

Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr

180					185					190					
-----	--	--	--	--	-----	--	--	--	--	-----	--	--	--	--	--

Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro

195				200					205						
-----	--	--	--	-----	--	--	--	--	-----	--	--	--	--	--	--

<210> 88
<211> 186
<212> PRT
<213> Hepatitis C virus

<400> 88

Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly	Thr	Val	Leu	Asp	Gln
1				5				10						15	

Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro

20					25					30					
----	--	--	--	--	----	--	--	--	--	----	--	--	--	--	--

Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu

35					40					45					
----	--	--	--	--	----	--	--	--	--	----	--	--	--	--	--

Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu
 50 55 60

Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys
 65 70 75 80

Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val
 85 90 95

Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp
 100 105 110

Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp
 115 120 125

Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp
 130 135 140

Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln
 145 150 155 160

Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys
 165 170 175

Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly
 180 185

<210> 89

<211> 158

<212> PRT

<213> Hepatitis C virus

<400> 89

Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu
 1 5 10 15

Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val
 20 25 30

Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile
 35 40 45

Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser
 50 55 60

Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
 65 70 75 80

Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro
 85 90 95

Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe
 100 105 110

Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln
 115 120 125

Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

130

135

140

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp
 145 150 155

<210> 90

<211> 129

<212> PRT

<213> Hepatitis C virus

<400> 90

Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser
 1 5 10 15

Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr
 20 25 30

Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly
 35 40 45

Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr
 50 55 60

Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser
 65 70 75 80

Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala
 85 90 95

Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu
 100 105 110

Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg
 115 120 125

Leu

<210> 91

<211> 51

<212> PRT

<213> Hepatitis C virus

<400> 91

Thr Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala
 1 5 10 15

Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu
 20 25 30

Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu
 35 40 45

Phe Asp Glu
 50

<210> 92
<211> 18
<212> PRT
<213> Hepatitis C virus

<400> 92
Ala Ala Leu Ala Ala Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val
1 5 10 15
Gly Arg

<210> 93
<211> 208
<212> PRT
<213> Hepatitis C virus

<400> 93
Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly Gln Thr Leu Leu
1 5 10 15
Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu Ala Ala Pro Gly
20 25 30
Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly
35 40 45
Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly
50 55 60
Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu
65 70 75 80
Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser
85 90 95
Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg
100 105 110
His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile
115 120 125
Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
130 135 140
Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr
145 150 155 160
Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
165 170 175
Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
180 185 190
Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met
195 200 205

<210> 94
<211> 207
<212> PRT
<213> Hepatitis C virus

<400> 94

Thr	Ala	Phe	Val	Gly	Ala	Gly	Leu	Ala	Gly	Ala	Ala	Ile	Gly	Ser	Val
1			5				10					15			

Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly

	20			25					30						
--	----	--	--	----	--	--	--	--	----	--	--	--	--	--	--

Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro

	35			40				45							
--	----	--	--	----	--	--	--	----	--	--	--	--	--	--	--

Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly

	50			55			60								
--	----	--	--	----	--	--	----	--	--	--	--	--	--	--	--

Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val

	65			70			75			80					
--	----	--	--	----	--	--	----	--	--	----	--	--	--	--	--

Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe

	85			90			95								
--	----	--	--	----	--	--	----	--	--	--	--	--	--	--	--

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser

	100			105			110								
--	-----	--	--	-----	--	--	-----	--	--	--	--	--	--	--	--

Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr

	115			120			125								
--	-----	--	--	-----	--	--	-----	--	--	--	--	--	--	--	--

Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr

	130			135			140								
--	-----	--	--	-----	--	--	-----	--	--	--	--	--	--	--	--

Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu

	145			150			155			160					
--	-----	--	--	-----	--	--	-----	--	--	-----	--	--	--	--	--

Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln

	165			170			175								
--	-----	--	--	-----	--	--	-----	--	--	--	--	--	--	--	--

Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val

	180			185			190								
--	-----	--	--	-----	--	--	-----	--	--	--	--	--	--	--	--

Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly Ala

	195			200			205								
--	-----	--	--	-----	--	--	-----	--	--	--	--	--	--	--	--

<210> 95
<211> 225
<212> PRT
<213> Hepatitis C virus

<400> 95

Leu	Val	Asp	Ile	Leu	Ala	Gly	Tyr	Gly	Ala	Gly	Val	Ala	Gly	Ala	Leu
1				5			10				15				

Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu

20

25

30

Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly
 35 40 45

Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly
 50 55 60

Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn
 65 70 75 80

His Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Arg
 85 90 95

Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg
 100 105 110

Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser
 115 120 125

Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe
 130 135 140

Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro
 145 150 155 160

Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly
 165 170 175

Ile Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val
 180 185 190

Lys Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met
 195 200 205

Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr
 210 215 220

Pro
 225

<210> 96

<211> 145

<212> PRT

<213> Hepatitis C virus

<400> 96

Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
 1 5 10 15

Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
 20 25 30

Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
 35 40 45

Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 50 55 60

Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
 65 70 75 80

His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu
 85 90 95

Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile
 100 105 110

Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
 115 120 125

Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
 130 135 140

Ala
 145

<210> 97

<211> 54

<212> PRT

H<213> Hepatitis C virus

<400> 97

Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
 1 5 10 15

Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe
 20 25 30

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
 35 40 45

Asp Ala Ala Ala Arg Val
 50

<210> 98

<211> 165

<212> PRT

<213> Hepatitis C virus

<400> 98

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
 1 5 10 15

Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr
 20 25 30

Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr
 35 40 45

Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu
 50 55 60

Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln
 65 70 75 80

Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val
 85 90 95

 Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly Ala Glu
 100 105 110

 Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly Pro Arg
 115 120 125

 Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr
 130 135 140

 Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn Tyr Lys Phe Ala Leu
 145 150 155 160

 Trp Arg Val Ser Ala
 165

<210> 99
 <211> 308
 <212> PRT
 <213> Hepatitis C virus

<400> 99
 Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser
 1 5 10 15

Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
 20 25 30

Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp
 35 40 45

Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala
 50 55 60

Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg
 65 70 75 80

Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys
 85 90 95

His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg
 100 105 110

Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro
 115 120 125

Ile Asn Ala Tyr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn
 130 135 140

Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile
 145 150 155 160

Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn
 165 170 175

Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu
 180 185 190

Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 195 200 205

Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 210 215 220

Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 225 230 235 240

Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 245 250 255

Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser Gln
 260 265 270

Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp Ser
 275 280 285

Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met
 290 295 300

Gly Gly Asn Ile
 305

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<210> 100

<211> 283

<212> PRT

<213> Hepatitis C virus

= <400> 100

~~I~~le Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp
 1 5 10 15

~~I~~le Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp
 20 25 30

~~I~~le Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu
 35 40 45

Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys
 50 55 60

Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr
 65 70 75 80

Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr
 85 90 95

Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr
 100 105 110

Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala
 115 120 125

Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val
 130 135 140

Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr

145

150

155

160

Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr
 165 170 175

Glu Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro
 180 185 190

Leu Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro
 195 200 205

Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu
 210 215 220

Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly
 225 230 235 240

Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ala
 245 250 255

Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His
 260 265 270

Asp Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn
 275 280

~~Asp Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn~~

<210> 101

<211> 249

<212> PRT

<213> Hepatitis C virus

<400> 101

Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
 1 5 10 15

Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp
 20 25 30

Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala
 35 40 45

Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg
 50 55 60

Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys
 65 70 75 80

His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg
 85 90 95

Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro
 100 105 110

Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn
 115 120 125

Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile
 130 135 140

Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn
 145 150 155 160
 Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu
 165 170 175
 Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 180 185 190
 Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 195 200 205
 Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 210 215 220
 Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 225 230 235 240
 Leu Ala Arg Gly Ser Pro Pro Ser Met
 245

<210> 102
 <211> 85
 <212> PRT
 <213> Hepatitis C virus

 <400> 102
 Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe
 1 5 10 15

 Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile
 20 25 30

 Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys
 35 40 45

 Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp
 50 55 60

 Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro
 65 70 75 80

 Leu Pro Ala Pro Asn
 85

<210> 103
 <211> 94
 <212> PRT
 <213> Hepatitis C virus

 <400> 103
 Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly Pro
 1 5 10 15

 Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr
 20 25 30

Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn Tyr Lys Phe Ala
 35 40 45

Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile Arg Arg Val Gly
 50 55 60

Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn Leu Lys Cys Pro
 65 70 75 80

Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu Asp Gly
 85 90

<210> 104

<211> 75

<212> PRT

<213> Hepatitis C virus

<400> 104

Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met Gly Gly Asn Ile Thr
 1 5 10 15

Arg Val Glu Ser Glu Asn Lys Val Val Ile Leu Asp Ser Phe Asp Pro
 20 25 30

Leu Val Ala Glu Glu Asp Glu Arg Glu Val Ser Val Pro Ala Glu Ile
 35 40 45

Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala Leu Pro Val Trp Ala Arg
 50 55 60

Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr Trp
 65 70 75

<210> 105

<211> 90

<212> PRT

<213> Hepatitis C virus

<400> 105

His Gly Cys Pro Leu Pro Pro Pro Arg Ser Pro Pro Val Pro Pro Pro
 1 5 10 15

Arg Lys Lys Arg Thr Val Val Leu Thr Glu Ser Thr Leu Ser Thr Ala
 20 25 30

Leu Ala Glu Leu Ala Thr Lys Ser Phe Gly Ser Ser Ser Thr Ser Gly
 35 40 45

Ile Thr Gly Asp Asn Thr Thr Ser Ser Glu Pro Ala Pro Ser Gly
 50 55 60

Cys Pro Pro Asp Ser Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu
 65 70 75 80

Glu Gly Glu Pro Gly Asp Pro Asp Leu Ser
 85 90

<210> 106
<211> 137
<212> PRT
<213> Hepatitis C virus

<400> 106
Ser Trp Thr Gly Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys
1 5 10 15

Leu Pro Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu
20 25 30

Val Tyr Ser Thr Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val
35 40 45

Thr Phe Asp Arg Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu
50 55 60

Lys Glu Val Lys Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser
65 70 75 80

Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys
85 90 95

Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val
100 105 110

Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr
115 120 125

Pro Ile Asp Thr Thr Ile Met Ala Lys
130 135

<210> 107

<211> 300

<212> PRT

<213> Hepatitis C virus

<400> 107
Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His
1 5 10 15

Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His
20 25 30

Ala Arg Lys Ala Val Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu
35 40 45

Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn Glu
50 55 60

Val Phe Cys Val Gln Pro Glu Lys Gly Arg Lys Pro Ala Arg Leu
65 70 75 80

Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met Ala Leu
85 90 95

Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser Ser Tyr
 100 105 110

Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val Gln Ala
 115 120 125

Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys
 130 135 140

Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile
 145 150 155 160

Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile Lys Ser
 165 170 175

Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser Arg Gly
 180 185 190

Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Thr Thr
 195 200 205

Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala Ala Cys
 210 215 220

~~D~~Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly Asp Asp
~~D~~225 230 235 240

~~N~~Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser
~~N~~245 250 255

~~S~~Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly
~~S~~260 265 270

~~S~~Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser
~~S~~275 280 285

~~S~~Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys
~~S~~290 295 300

<210> 108

<211> 199

<212> PRT

<213> Hepatitis C virus

<400> 108

Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe
 1 5 10 15

Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala
 20 25 30

His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro
 35 40 45

Ile Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro
 50 55 60

Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu
 65 70 75 80

Gly Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys
 85 90 95

Leu Pro Leu Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro
 100 105 110

Gly Gln Arg Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr
 115 120 125

Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr
 130 135 140

Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu
 145 150 155 160

Asp Pro Gln Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr
 165 170 175

Val Gly Gly Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg
 180 185 190

Arg Cys Arg Ala Ser Gly Val
 195

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<210> 109

<211> 260

<212> PRT

<213> Hepatitis C virus

= <400> 109

Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys
 1 5 10 15

Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly Arg Lys Pro Ala
 20 25 30

Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met
 35 40 45

Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser
 50 55 60

Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val
 65 70 75 80

Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr
 85 90 95

Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu
 100 105 110

Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile
 115 120 125

Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser
 130 135 140

Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu

145	150	155	160
Thr Thr Ser Cys Gly Asn Thr Leu Thr	Cys Tyr Ile Lys Ala Arg Ala		
165	170	175	
Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly			
180	185	190	
Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala			
195	200	205	
Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro			
210	215	220	
Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser			
225	230	235	240
Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val			
245	250	255	
Tyr Tyr Leu Thr			
260			

<210> 110
 <211> 127
 <212> PRT
 <213> Hepatitis C virus

 <400> 110
 Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser Leu Arg
 1 5 10 15
 Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro
 20 25 30
 Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn
 35 40 45
 Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr
 50 55 60
 Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg
 65 70 75 80
 His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro
 85 90 95
 Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu
 100 105 110
 Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr
 115 120 125

<210> 111
 <211> 89
 <212> PRT
 <213> Hepatitis C virus

<400> 111

Val	Ser	Val	Ala	His	Asp	Gly	Ala	Gly	Lys	Arg	Val	Tyr	Tyr	Leu	Thr
1				5				10						15	

Arg	Asp	Pro	Thr	Thr	Pro	Leu	Ala	Arg	Ala	Ala	Trp	Glu	Thr	Ala	Arg
				20				25					30		

His	Thr	Pro	Val	Asn	Ser	Trp	Leu	Gly	Asn	Ile	Ile	Met	Phe	Ala	Pro
				35			40					45			

Thr	Leu	Trp	Ala	Arg	Met	Ile	Leu	Met	Thr	His	Phe	Phe	Ser	Val	Leu
				50			55					60			

Ile	Ala	Arg	Asp	Gln	Leu	Glu	Gln	Ala	Leu	Asn	Cys	Glu	Ile	Tyr	Gly
				65		70				75			80		

Ala	Cys	Tyr	Ser	Ile	Glu	Pro	Leu	Asp
				85				

<210> 112

<211> 73

<212> PRT

<213> Hepatitis C virus

<400> 112

Leu	His	Gly	Leu	Ser	Ala	Phe	Ser	Leu	His	Ser	Tyr	Ser	Pro	Gly	Glu
1				5				10					15		

Ile	Asn	Arg	Val	Ala	Ala	Cys	Leu	Arg	Lys	Leu	Gly	Val	Pro	Pro	Leu
				20			25					30			

Arg	Ala	Trp	Arg	His	Arg	Ala	Arg	Ser	Val	Arg	Ala	Arg	Leu	Leu	Ser
				35			40					45			

Arg	Gly	Gly	Arg	Ala	Ala	Ile	Cys	Gly	Lys	Tyr	Leu	Phe	Asn	Trp	Ala
				50			55				60				

Val	Arg	Thr	Lys	Leu	Lys	Leu	Thr	Pro
				65		70		

<210> 113

<211> 63

<212> PRT

<213> Hepatitis C virus

<400> 113

Ser	Pro	Gly	Glu	Ile	Asn	Arg	Val	Ala	Ala	Cys	Leu	Arg	Lys	Leu	Gly
1				5				10				15			

Val	Pro	Pro	Leu	Arg	Ala	Trp	Arg	His	Arg	Ala	Arg	Ser	Val	Arg	Ala
				20			25					30			

Arg	Leu	Leu	Ser	Arg	Gly	Gly	Arg	Ala	Ala	Ile	Cys	Gly	Lys	Tyr	Leu
				35			40				45				

Phe	Asn	Trp	Ala	Val	Arg	Thr	Lys	Leu	Lys	Leu	Thr	Pro	Ile	Ala
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

50

55

60

<210> 114
 <211> 310
 <212> DNA
 <213> Hepatitis C virus

<400> 114
 tgcttcgcag tgccccggga ggtctcgtag accgtgcacc atgagcacga atcctaaacc 60
 tcaaagaaaa accaaacgta acaccaaccg tcgcccacag gacgtcaagt tcccggtgg 120
 cggtcagatc gttgggtggag ttacttggt gccgcgcagg ggccttagat tgggtgtgcg 180
 cgcgacgagg aagacttccg agcggtcga acctcgaggt agacgtcagc ctatccccaa 240
 ggcacgtcgg cccgagggca ggacctgggc tcagccccggg tacccttggc ccctctatgg 300
 caatgagggt 310

<210> 115
 <211> 339
 <212> DNA
 <213> Hepatitis C virus

<400> 115
 Atgagcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccg tcgcccacag 60
 Gacgtcaagt tcccggtgg cggtcagatc gttgggtggag ttacttggt gccgcgcagg 120
 Ggccttagat tgggtgtgcg cgcgacgagg aagacttccg agcggtcga acctcgaggt 180
 Agacgtcagc ctatccccaa ggcacgtcgg cccgagggca ggacctgggc tcagccccggg 240
 Utacccttggc ccctctatgg caatgagggt tgccgggtggg cggatggct cctgtctccc 300
 Cgtggctctc ggcttagctg gggccccaca gaccccccgg 339

<210> 116
 <211> 345
 <212> DNA
 <213> Hepatitis C virus

<400> 116
 Atgccatccgt cacactccgg ggtgtgtccc ttgcgttcgc gagggtaacg cctcgagggt 60
 Ttgggtggcg gtgacccca cggtgccac cagggacggc aaactccccaa caacgcagct 120
 Tcgacgtcat atcgatctgc ttgtcggag cgccaccctc tgctcggccc tctacgtggg 180
 Ggacctgtgc ggtctgtct ttcttgggg tcaactgttt accttctctc ccaggcgcca 240
 Ctggacgacg caagactgca attgttctat ctatccccggc catataacgg gtcatcgcat 300
 Ggcattggat atgatgtatgtactggcccc tacggcagcg ttgg 345

<210> 117
 <211> 276
 <212> DNA
 <213> Hepatitis C virus

<400> 117
 Cggcgtcgac gcggaaacccc acgtcacccgg gggaaatgcc ggccgcacca cggctgggt 60
 Tgttgtctc ctacaccagg gcggcaagca gaacatccaa ctgatcaaca ccaacggcag 120
 Ttggcacatc aatagcacgg ctttgaattt caatgaaagc cttAACACCG gctggtagc 180
 Agggctcttc tatcaacaca aattcaactc ttcaaggctgt cctgagaggt tggccagctg 240
 Ccgacgcctt accgattttgc cccagggtgg 276

<210> 118
 <211> 531

<212> DNA

<213> Hepatitis C virus

<400> 118

ctggggtcct atcagttatg ccaacggaag cggcctcgac gaacgcccct actgctggca 60
 ctaccctcca agaccttgcg gcattgtgcc cgcaaagagc gtgtgtggcc cggtatattg 120
 cttcaactccc agccccgtgg tgggtggaaac gaccgacagg tcgggcgcgc ctacctacag 180
 ctggggtgca aatgatacgg atgtcttcgt ccttaacaac accaggccac cgctggcaa 240
 ttggttcgt tgcacccgtt gtaactcaac tggattcacc aaagtgtgcg gagcggccccc 300
 ttgtgtcatc ggagggtgg gcaacaacac cttgctctgc cccactgatt gcttccgcaa 360
 acatccggaa gccacatact ctcggcggg ctccggtccc tggattacac ccaggtgcatt 420
 ggtcactac ccgtataggc tttggcacta tccttgcattt atcaattaca ccattttcaa 480
 agtcaggatg tacgtggag gggtcgagca caggctggaa gcggcctgca a 531

<210> 119

<211> 289

<212> DNA

<213> Hepatitis C virus

<400> 119

ctggcactac cctccaaagac cttgtggcat tggcccgca aagagcgtgt gtggcccggt 60
 atattgttc actcccgcc cctgtgggt gggAACGACC gacaggtcgg gcgcgcctac 120
 Octacagctgg ggtgcaaatg atacggatgt cttcgtcctt aacaacacca ggccaccgct 180
 Gggcaattgg ttcgggtgtt cctggatgaa ctcaactgga ttcacccaaag tgcgggagc 240
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<210> 120

<211> 836

<212> DNA

<213> Hepatitis C virus

<400> 120

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 tacctgtca cgaggcacgc cgatgtcatt cccgtgcgcc ggcgaggtga tagcaggggt 480
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 tgcccccggg gacacgcccgt gggcttattc agggccggg tgcaccccg tggagtggt 600
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 acggacaact cctctccacc agcagtgcacc cagagcttcc aggtggccca cctgcatgtct 720
 cccacccggca gggtaagag caccaaggc cccgtgcgt acgcagccca gggctacaag 780
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<210> 121

<211> 475

<212> DNA

<213> Hepatitis C virus

<400> 121

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 cgcgggtgc acccggtggag tggctaaagc ggtggacttt atccctgtgg agaacctagg 180
 gacaaccatg agatccccgg tgcgtacggc caactcctt ccaccagcag tgcccccagag 240
 cttccaggtg gcccacctgc atgctccac cggcagcggt aagagcaca aaggtcccg 300

tgcgtacgca gcccaggcgtt acaagggtgtt ggtgctcaac ccctctgttg ctgcaacgct 360
 gggcttttgtt gcttacatgtt ccaaggccca tggggttgtat cctaataatca ggaccggggtt 420
 gagaacaattt accactggca gccccatcac gtactccacc tacggcaagt tcctt 475

<210> 122
<211> 790
<212> DNA
<213> Hepatitis C virus

<400> 122
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 gggccgcgtt ttgtgcggccg cgggacacgc cgtggcccta ttcaaggccg cggtgtgcac 120
 ccgtggagtg gctaaagccg tggactttat ccctgtggag aacctaggga caaccatgag 180
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 aggaggtgt tatgacataa taatttgtga cgagtggccac tccacggat ccacatccat 540
 cttgggcattt ggcactgtcc ttgaccaagc agagactgctt ggggcgagac tgggttggtc 600
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 tctgtccacc accggagaga tcccccttta cggcaaggctt atccccctcg aggtgatcaa 720
 ggggggaaga catctcatct tctgccactc aaagaagaag tgcgacgagc tcgcccgcgaa 780
 gctggcgtca 790

<210> 123
<211> 583
<212> DNA
<213> Hepatitis C virus

<400> 123
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 ccataatgggtt gatcctaata tcagggccgg ggtgagaaca attaccactg gcagccccat 240
 cacgtactcc acctacggca agtttcttgc cgacggccgg tgctcaggag gtgttatga 300
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 tccgggtcc gtcactgtgtt cccatccata catcgaggag gttgtctgtt ccaccaccgg 480
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 catcttctgc cactcaaaga agaagtgcga cgagctcgcc gcg 583

<210> 124
<211> 617
<212> DNA
<213> Hepatitis C virus

<400> 124
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 gggggccaga ctgggttgtc tcggccactgc taccctccg ggctccgtca ctgtgtccca 180
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 gtgcgacgag ctgcgcgcga agctgggtcgc attgggcacat aatggccgtgg cctactaccg 360
 cggctctgtac gtgtctgtca tcccgaccag cggcgatgtt gtcgtcggtt cgaccgatgc 420
 tctcatgact ggctttaccg gcgacttcga ctctgtgata gactgcaaca cgtgtgtcac 480
 tcagacagtc gatttcagcc ttgacccatc ttaccatt gagacaacca cgctccccca 540
 ggtatgttc tccaggactc aacggccgggg caggactggc agggggaaagc caggcatcta 600

tagatttgtg gcaccgg

617

<210> 125
<211> 559
<212> DNA
<213> Hepatitis C virus

<400> 125

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tcctaacatc gaggaggtt ctctgtccac caccggagag atccccttt acggcaaggc 180
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gtgcacgg ctcgcccgcga agctggtcgc attgggcata aatggccgtgg cctactaccg 300
cggtcttgac gtgtctgtca tcccgaccag cgccgatgtt gtctgtgtgt cgaccgatgc 360
tctcatgact ggctttaacc gcgacttcga ctctgtgata gactgcaaca cgtgtgtcac 420
tcagacagtc gatttcagcc ttgaccctac ctttaccatt gagacaacca cgctccccca 480
ggatgtgtc tccaggactc aacgggggg caggactggc agggggaaagc caggcatcta 540
tagatttgtg gcaccgggg 559
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<210> 126
<211> 475
<212> DNA
<213> Hepatitis C virus

<400> 126

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gactggcagg ggaagccag gcatctatag atttggca ccgggggagc gcccctccgg 180
catgttcgac tcgtccgtcc tctgtgatgt ctatgacgcg ggctgtgtt ggtatgagct 240
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gtgccaggac catcttgaat tttgggaggg cgtcttacg ggcttcaact atatacatgc 360
ccactttta tccagacaa agcagagtgg ggagaactt ctttacctgg tagcgtacca 420
agccaccgtg tgcgcttaggg ctcaagcccc tccccatcg tggaccaga tgtgg 475
```

<210> 127
<211> 390
<212> DNA
<213> Hepatitis C virus

<400> 127

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gtgctatgac gccccgtgtt ctggatgtga gtcacgccc gccgagacta cagttaggct 120
acgagcgtac atgaacaccc cggggcttcc cgtgtccag gaccatctt aattttggga 180
ggcgctttt acgggcctca ctcatataga tccccactt ttatcccaga caaagcagag 240
tggggagaac ttcccttacc tggtagcgta ccaagccacc gtgtgcgcta gggctcaagc 300
ccctccccca tcgtgggacc agatgtggaa gtgtttgatc cgccttaaac ccaccctcca 360
tggccaaca cccctgtat acagactggg 390
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<210> 128
<211> 155
<212> DNA
<213> Hepatitis C virus

<400> 128

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acgagcacat gggtgctcggt tggcggcggtc ctggctgtc tggccgcgtt ttgcctgtca 60
acaggctcggtt tggtagatgtt gggcaggatc gtcttgcgtt ggaagccggc aattataacct 120
gacaggaggatc ttctctacca ggagttcgat gagat 155
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<210> 129
 <211> 56
 <212> DNA
 <213> Hepatitis C virus

<400> 129
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<210> 130
 <211> 625
 <212> DNA
 <213> Hepatitis C virus

<400> 130
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 ggggggggtgg gtggctgccc agctcgccgc cccccgtgcc gctactgcct ttgtgggtgc 120
 tggcttagct ggcgcgcaca tcggcagcgt tggactgggg aaggctctcg tggacattct 180
 tgcagggtat ggcgcggggc tggcgggagc tctttagtca ttcaagatca tgagcggta 240
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 Qagtgcataatgg atgaaccggc taatagcctt cgcctcccg gggaaaccatg tttcccccac 420
 Ggcactacgtg ccggagagcg atgcagccgc cccgcgtact gccataactca gcagcctcac 480
 Atgtaaaccag ctccctgaggc gactgcatca gtggataagc tcggagtgta ccactccatg 540
 Rctccgggtcc tggctaaggg acatctggga ctggatatgc gaggtgctga gcgactttaa 600
 Lgacctggctg aaagccaagc tcatg 625

&
 <210> 131
 <211> 623
 " <212> DNA
 <213> Hepatitis C virus

&
 <400> 131
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 ggtcctcggt gacattcttg cagggatgg cgccggcggtg gcccggagctc ttgttagcatt 120
 caagatcatg agcggtgagg tccctccac ggaggacactg gtcaatctgc tgcccgccat 180
 cctctcgccct ggagcccttg tagtcgggtg ggtctgcga gcaatactgc gcccgcacgt 240
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 gaaccatgtt tccccccacgc actacgtgcc ggagagcgat gcagccgccc gctcaactgc 360
 cataactcagc agcctcactg taaccctagct cctgaggcga ctgcataatgc ggataagctc 420
 ggagtgtacc actccatgtc ccgggtcctg gctaaggggac atctgggact ggatatgcga 480
 ggtgctgagc gactttaaga cctggctgaa agccaagctc atgccacaac tgcctggat 540
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<210> 132
 <211> 678
 <212> DNA
 <213> Hepatitis C virus

<400> 132
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 gatcatgagc ggtgagggtcc cttccacggc ggacctggc aatctgtgc ccgcacatcct 120
 ctcgcctggc gccttggtaa tcgggtgtggt ctgcgcagca atactgcgc ggcacgttgg 180
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 cggtccctagg acctgcagga acatgtggag tggacgttc cccattaacg cctacaccac 660
 gggccccctgt actccccct 678

<210> 133
 <211> 436
 <212> DNA
 <213> Hepatitis C virus

<400> 133
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 ttagtcgt gtggctcgac cagaatact gcgcggcac gttggcccg gcgagggggc 180
 agtgcacatgg atgaaccggc taatagcctt cgccctccgg gggAACATG tttccccac 240
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 tggtaacccag ctccctgaggc gactgcatca gtggataagc tcggagtgtatcc 360
 ctccgggtcc tggctaaggg acatctggga ctggatatgc gaggtgtga gcgactttaa 420
 gacctggctg aaagcc 436

Q
Q<210> 134
Q<211> 164
Q<212> DNA
Q<213> Hepatitis C virus

S<400> 134
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 gggggcagtg caatggatga accgctaat agccttcgccc tcccggggga accatgtttc 120
 cccacgcac tacgtgccgg agagcgatgc agccggccgc gtca 164

Q
Q<210> 135
Q<211> 496
Q<212> DNA
Q<213> Hepatitis C virus

<400> 135
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 ccgcgtcact gccatactca gcagcctcac tggataaccagg ctccctgaggc gactgcatca 120
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 gacgatgagg atcgtcggtc ctggacactg caggaacatg tggagtggga cgttccccat 420
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 gtggagggtg tctgca 496

<210> 136
 <211> 926
 <212> DNA
 <213> Hepatitis C virus

<400> 136
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 taccgggtgg ggtcgcaatt accttgcag cccgaaccgg acgtagccgt gttgacgtcc 720
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 tcacccctt ctatggccag ctccctggct agccagctgt ccgctccatc tctcaaggca 840
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 aggccaggaga tggcgccaa catcac 926

<210> 137
<211> 850
<212> DNA
<213> Hepatitis C virus

<400> 137
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 gtgttaccact ccatgctccg gttctggct aaggggacatc tggactggta tatgcgaggt 120
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 gagaagggtt gcgagagggt caccggcttc tatggccagc tcctcggtca gccagctgtc 780
 cgtccatct ctcaaggcaa ctgcacccgc caaccatgac tccctgacg ccgagctcat 840
 gagggctaac 850

<210> 138
<211> 749
<212> DNA
<213> Hepatitis C virus

<400> 138
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 cactccatgc tcgggttcct ggctaaggga catctggac tggatatgcg aggtgctgag 120
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 cgtgttgcacg tccatgtca ctgcacccctc ccatataaca gcagaggcgg ccgggagaag 720
 gttggcgaga ggtcaccacc cttctatgg 749

<210> 139
<211> 257

<212> DNA

<213> Hepatitis C virus

<400> 139

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 agctgagatc actggacatg tcaaaaacgg gacgatgagg atcgctggtc ctaggacctg 180
 caggaacatg tggagtggga cgttccccat taacgcctac accacgggcc cctgtactcc 240
 cttccctgctg 257
 ccgaact

<210> 140

<211> 285

<212> DNA

<213> Hepatitis C virus

<400> 140

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 gaacatgtgg agtgggacgt tccccattaa cgcctacacc acggggccct gtactcccct 120
 tcctcgcccg aactataagt tcgcgtgtg gagggtgtct gcagaggaat acgtgagat 180
 aaggcggtg ggggacttcc actacgtatc gggtatgact actgacaatc taaaatgccc 240
 gtgccagatc ccatcgcccg aattttcac agaattggac ggggt 285

Q

<210> 141

<211> 228

<212> DNA

<213> Hepatitis C virus

L

<400> 141

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 agagaacaaa gtggtgattc tggactcctt cgatccgctt gtggcagagg aggatgagcg 120
 ggaggctccgt gtacctgcag aaattctgcg gaagtctcgg agattcggccc gggccctgcc 180
 cgtctggcg cgccggact acaacccccc gctagtagag acgtggaa 228

Q

Q

<210> 142

<211> 273

<212> DNA

<213> Hepatitis C virus

<400> 142

ccatggctgc ccgttaccac ctccacggtc ccctccgtg cctccgcctc ggaaaaagcg 60
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 ttttggcagc tcctcaactt ccggcattac gggcgacaat acgacaacat cctctgagcc 180
 cggcccttctt ggttggccccc ccgactccga cgtttagtcc tattttcca tgccccccct 240
 ggagggggag cctggggatc cggatctcag cga 273

<210> 143

<211> 412

<212> DNA

<213> Hepatitis C virus

<400> 143

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 cgcactgagc aactcggtgc tacggcatca caatctgtg tattccacca cttcacgcag 120
 tgcttgcacca aggcagaaga aagtccatc tgacagactg caagttctgg acagccatta 180
 ccaggacgtg ctcaaggagg tcaaagcagc ggcgtcaaaa gtgaaggcta acttgctatc 240
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agaccttctg gaagacagtg taacaccaat agacactacc atcatggcca ag

412

<210> 144

<211> 903

<212> DNA

<213> Hepatitis C virus

<400> 144

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 caagttggc tatggggcaa aagacgtccg ttgccatgcc agaaaaggccg tagcccacat 120
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 ggc当地 aac gaggtttct gcgttcagcc tgagaagggg ggtcgtaagc cagctcgct 240
 catcggttc cccgacctgg gcgtgcgcgt gtgcgagaag atggccctgt acgacgtgg 300
 tagcaagctc cccctggccg ttagtggaaag ctccatcgga ttccaataact caccaggaca 360
 gcggttgaa ttccctcgta aagcggtggaa gtccaaagaag accccgatgg ggttctcgta 420
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 cccgc当地 ggcgtactga caactagctg tggttaacacc ctcaacttgct acatcaaggc 660
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 cacggaggct atgaccaggct actccgcccc ccccgggac ccccccacaac cagaatacga 840
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~~gag~~

~~g~~

<210> 145

<211> 600

<212> DNA

<213> Hepatitis C virus

<400> 145

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 cttctggaa gacagtgtaa caccaataga cactaccatc atggccaaga acgagggttt 180
 tgcgttcag cctgagaagg ggggtcgtaa gccagctcg tctcatcggt tcccccaccc 240
 gggtgcgcgt gttgcgaga agatggccct gtacgacgtg gtttagcaagc tcccccctggc 300
 ggtgatggaa agtcctacg gattccaata ctcaccagga cagcgggttg aattcctcg 360
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 ctccacagtc actgagagcg acatccgtac ggaggaggca atttaccaat gttgtgaccc 480
 ggaccccaa gcccgcgtgg ccatcaagtc ctcactgag aggtttatg ttggggccccc 540
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<210> 146

<211> 781

<212> DNA

<213> Hepatitis C virus

<400> 146

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 gacaactagc tggtaaca ccctcaacttg ctacatcaag gcccggcagc cctgtcgagc 540
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aagtgcgggg gtccaggagg acgcggcgag cctgagagcc ttcacggagg ctatgaccag 660
 gtactccgcc cccccccggg accccccaca accagaatac gacttggagc ttataacatc 720
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<210> 147
 <211> 382
 <212> DNA
 <213> Hepatitis C virus

<400> 147
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 gcttataaca tcatgctcc ccaacgtgtc agtcgcccac gacggcgctg gaaagagggt 180
 ctactaccc acccgtgacc ctacaacccc cctcgcgaga gccgcgtggg agacagcaag 240
 acacactcca gtcaattcct ggctaggcaa cataatcatg tttccccca cactgtggc 300
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 ggctctaacc tgtagatct ac 382

<210> 148
 <211> 268
 <212> DNA
 <213> Hepatitis C virus

<400> 148
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 aggcaacata atcatgtttg ccccccacact gtgggcgagg atgatactga tgaccacattt 180
 ctttagcgcc ctcatagcca gggatcagct tgaacaggct cttaactgtg agatctacgg 240
 agcctgtac tccatagaac cactggat 268

<210> 149
 <211> 222
 <212> DNA
 <213> Hepatitis C virus

<400> 149
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<210> 150
 <211> 192
 <212> DNA
 <213> Hepatitis C virus

<400> 150
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 tccaatagcg gc 192

<210> 151
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 <212> DNA

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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: linker
      sequence

<400> 151
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<210> 152
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: linker
      sequence

<400> 152
      ttcgtggccc ctg                                         13

<210> 153
<211> 138
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: pP6 vector
      sequence

<400> 153
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      ggggcccccc gtaccggcgt ccccgccgccc ggcgtgatca cccctaggaa ttaatttccc 120
      ggtgaccccg gggagct                                         138

<210> 154
<211> 128
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: pB5 vector
      sequence

<400> 154
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      ccccgccgt ccccgccgccc ggcgtgatca cccctaggaa ttaatttccc ggtgaccccg 120
      gggagct                                         128

<210> 155
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

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<400> 155
gcgttggaa tcactacagg

<210> 156
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 156
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